

**Work Order ID 69620**

Thursday, May 12, 2011 3:16:04 PM



Page 1

Item ID: D2010-103

Accept



Setup Start



Revision ID:

Stop



Item Name: Mirror Arm, 500

Start Date: 5/12/2011 Start Qty: 6.00



Cust Item ID:

Required Date: 5/16/2011 Req'd Qty: 6.00



Customer:

Reference:

Approvals:

Process Plan:

Date: 5-12-12

Tooling:

Date:

QC:

Date:

SPC (Y/N):

Date:

Run Start



Stop



Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

Draw Nbr

Revision Nbr

D2010

Rev D

100

0.00



NC BRAKE

Brake NC

Memo

0.00

Brake NC

Punch per Dwg. D2010-103-T1 and Spec Control Dwg D2727  
Identify as D2010-103

6X M-11/05/19

110

0.00



Small Fab

Small Fab

Memo

0.00

Small Fab

1- Bend as per Dwg D2010 using bending Jig D2010-103T2  
2- Deburr ends

6X M-11/05/19

120

0.00



Small Fab

Small Fab

Memo

0.00

Small Fab

1-flare before installing plug as per dwg D2010  
2-Install D2057 plug as per Dwg D2010

6X M-11/05/19

W/O:		WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector	

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_






NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			



**NOTE:** Date & initial all entries

**Work Order ID 69620**



Thursday, May 12, 2011 3:16:04 PM


Page 2


Item ID: D2010-103 Accept  Setup Start   
Revision ID:  
Item Name: Mirror Arm, 500 Stop   
Start Date: 5/12/2011 Start Qty: 6.00  Cust Item ID:  
Required Date: 5/16/2011 Req'd Qty: 6.00  Customer:  
Reference:

Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_ Run Start   
QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_ Stop 

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

130  QC Quality Control	QC5- Inspect part completeness to step on W/O  Memo	0.00 0.00		8 idoslig					
---	---	--------------	--	-----------	--	---	--	--	--

140  Powdercoat Powder Coating	Black Sandtex(Ref:4.3.5.7) per QSI005 4.3  Memo START TIME: 11:20 FINISH TIME: 11:50	0.00 0.00				6	BR	11-5-25	
---	--	--------------	--	--	--	---	----	---------	--

150  QC Quality Control	QC3- Inspect Part Finish  Memo	0.00 0.00				6	φ	11/05/25	
---	--------------------------------------	--------------	--	--	--	---	---	----------	--

W/O:		WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector	

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

**Work Order ID 69620**

Thursday, May 12, 2011 3:16:04 PM

Page 3

Item ID: D2010-103

Accept

Revision ID:

Item Name: Mirror Arm, 500

Start Date: 5/12/2011 Start Qty: 6.00

Required Date: 5/16/2011 Req'd Qty: 6.00

Reference:

Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_

QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Run Start

Stop

Sequence ID/  
Work Center IDOperation  
DescriptionSet Up/  
Run Hours

Tool ID

Tool #

Plan  
CodeAccept  
QtyReject  
QtyReject  
NumberInsp.  
Stamp

160

Identify as per dwg & Stock Location: *220*

0.00



Packaging

Memo

0.00

Packaging

*11/5/25* *625*

170

QC21- Final Inspection - Work Order Release

0.00



QC

Memo

0.00

Quality Control

*11/5/26**11-05-25*  
*(4)*

W/O:		WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector	

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

# Picklist Print

Thursday, May 12, 2011 3:16:20 PM

Page 1

Work Order ID: 69620

Parent Item: D2010-103

Parent Item Name: Mirror Arm, 500



Start Date: 5/12/2011

Required Date: 5/16/2011

Start Qty: 6.00

Required Qty: 6.00

Comments: IPP : F 02.08.21 Re-format; Added D2057 KJ/RF  
IPP Rev:G 08-05-27 as per ECN1195P DD verified by:EC  
IPP Rev:H 08-06-20 rev.D as per dwg DD verified by:EC

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
M304TR0.500W.049  304 RD Tube .500 x .049W		Purchased	No			100	f	287.6869	1.5	9.473684			
				<u>Location</u>				<u>Loc Qty</u>		<u>Loc Code</u>			
				MAT017				287.68685					
				111814				2.23					
				115010				185.45685					
				117598				100					
D2057  Plug		Manufactured	No			110	Each	11.0000	1	6			
				<u>Location</u>				<u>Loc Qty</u>		<u>Loc Code</u>			
				ST005				11					
				60880				11					

M-L 11/05/18

9.473684

M-L 11/05/19

6x

W/O:		WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector	

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries



8

7

6

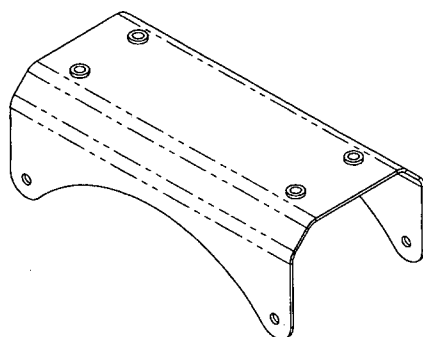
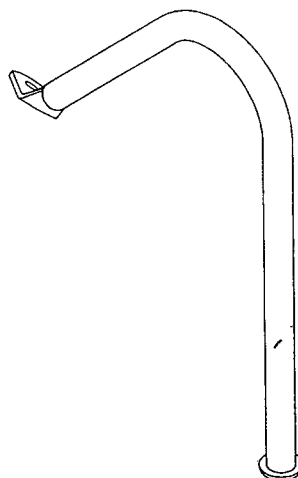
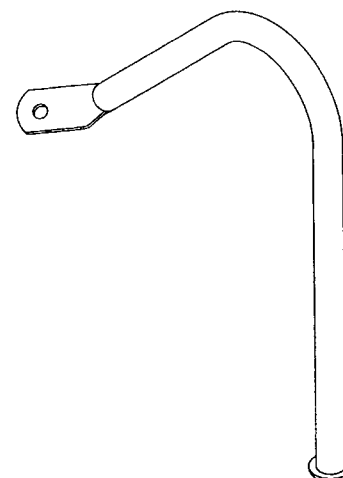
5

4

3

2

1

**D2010-101 MIRROR BRACKET****D2010-103 ARM****D2010-104 ARM**

**RELEASED**  
2006/19/11

SHOP COPY  
RETURN TO  
ENGINEERING  
UNCONTROLLED COPY  
SUBJECT TO AMENDMENT  
WITHOUT NOTICE  
WORK ORDER

NO.

11-05-12 19620

D	REDRAWN IN SOLIDWORKS; ADD D2010-1F FLAT PATTERN FOR D2010-101 (ZN B7-2); Ø0.500 X 0.049 WALL WAS: Ø0.500 X 0.035 WALL (ZN B1-3, B1-4); REASON: TUBING CRACKING DURING SERVICE	PH	08.06.10
C	1.93 WAS 2.00; 0.50 WAS 0.62	KE	97.10.31
B	7.90 WAS 10.90	JB	92.03.17
A	NEW ISSUE	JB	90.12.15
REV.	DESCRIPTION	BY	DATE
DESIGN	JB	<b>DART AEROSPACE LTD</b> HAWKESBURY, ONTARIO, CANADA	
DRAWN	JB		
CHECKED	JB	DRAWING NO.	REV. D
MFG. APPR.	JB	D2010	SHEET 1 OF 4
APPROVED	JB	TITLE	SCALE
DE APPR.	JB	MIRROR BRACKET	NTS
DATE	08.06.10	COPYRIGHT © 1990 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COMMERCIALIZED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	

W/O:		WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector	

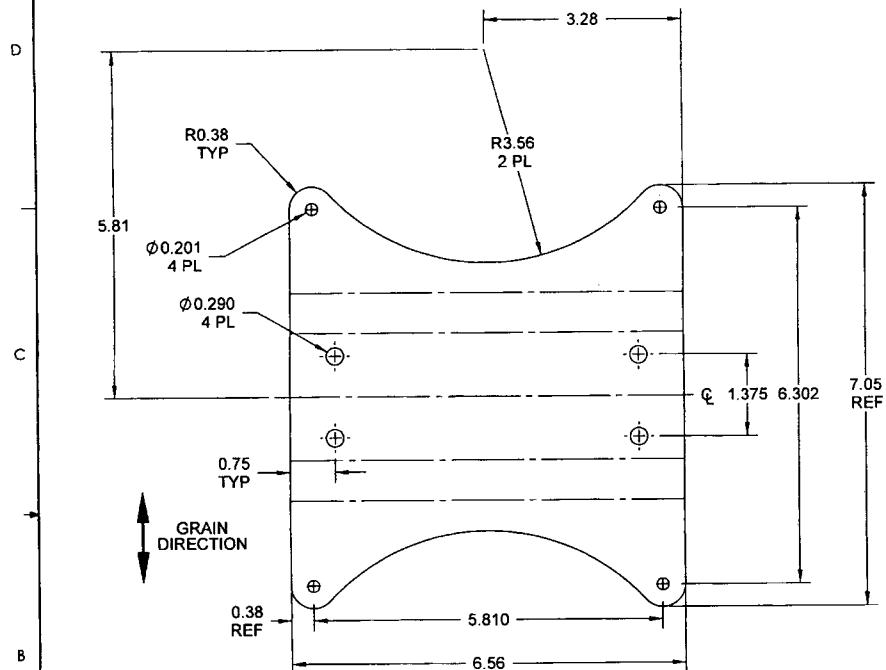
Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

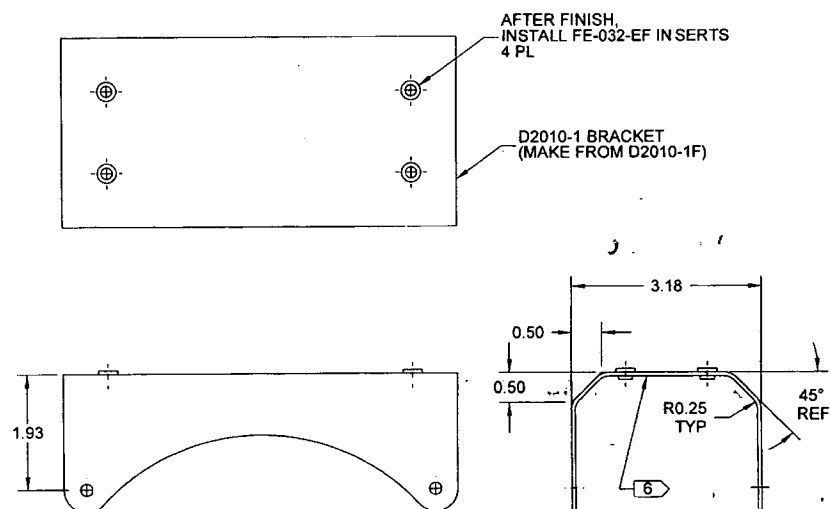
NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

QTY -101	P/N	DESCRIPTION
X	D2010-101	MIRROR BRACKET
1	D2010-1	BRACKET
4	FE-032-EF	INSERT



**D2010-1F FLAT PATTERN**  $\triangle$



**D2010-101 MIRROR BRACKET**

- NOTES:
- 1) MATERIAL: D2010-1F: 2024-T3 ALUMINUM SHEET, 0.063 THICK PER AMS-QQ-A-250/4 OR AMS 4037 (REF DART SPEC M2024T3S.063)
  - 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1 POWDER COAT BLACK SANTEX (4.3.5.7) PER DART QSI 005 4.3
  - 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
  - 4) UNITS: INCHES UNLESS OTHERWISE NOTED
  - 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
  - 6) IDENTIFICATION: IDENTIFY WITH DART P/N "D2010-101" USING WHITE FINE POINT PERMANENT INK MARKER OR LABEL
  - 7) WEIGHT: 0.23 lbs

DESIGN	JB	<b>DART AEROSPACE LTD</b> HAWKESBURY, ONTARIO, CANADA	
DRAWN	JB		
CHECKED	JB	DRAWING NO.	REV. D
MFG. APPR.	JB	D2010	SHEET 2 OF 4
APPROVED	JB	TITLE	SCALE
DE APPR.	JB	MIRROR BRACKET	NTS
DATE	08.06.10	COPYRIGHT © 1990 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	

RELEASED  
58.06.19/11

u10 69620

W/O:		WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector	

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

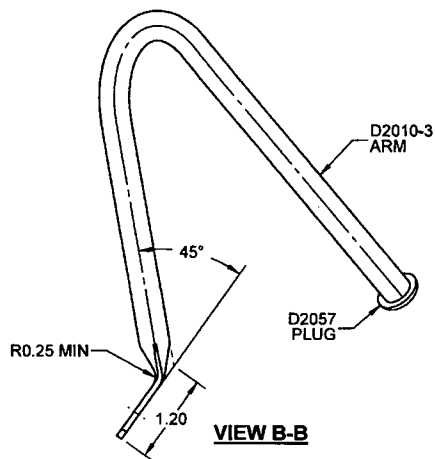
Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

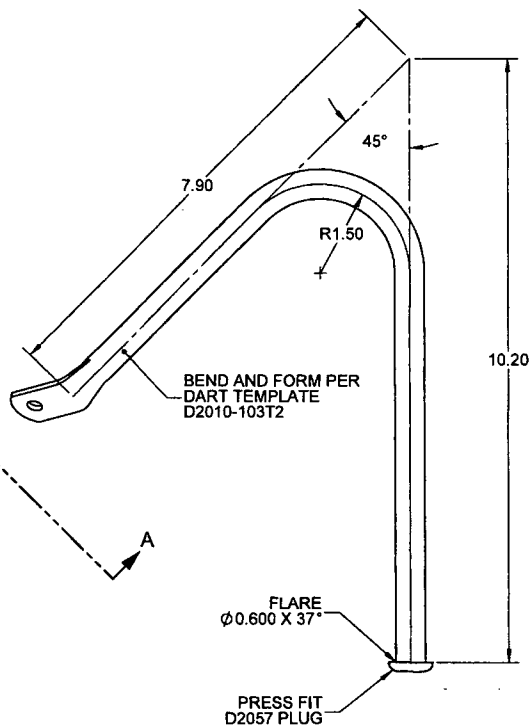
**NOTE:** Date & initial all entries

8 7 6 5 4 3 2 1

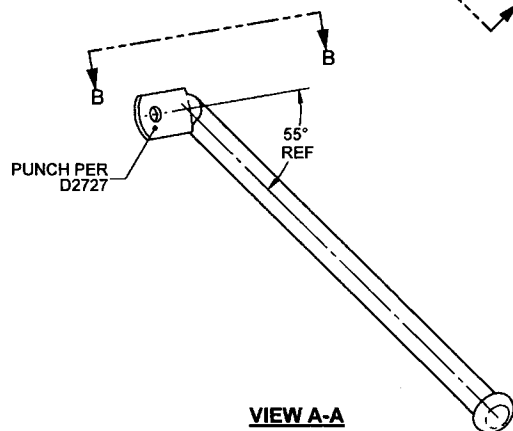
QTY -103	P/N	DESCRIPTION
X	D2010-103	ARM
1	D2010-3	ARM
1	D2057	PLUG



VIEW B-B



D2010-103 ARM



VIEW A-A

RELEASED  
08-06-10

- NOTES:
- 1) MATERIAL: D2010-3: AISI 304/316 SS SEAMLESS ROUND TUBING,  $\phi 0.500 \times 0.049$  WALL (REF DART SPEC M304TR0.500W.049)  $\Delta$
  - 2) FINISH: POWDER COAT BLACK SANDTEX (4.3.5.7) PER DART QSI 005 4.3
  - 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
  - 4) UNITS: INCHES UNLESS OTHERWISE NOTED
  - 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
  - 6) IDENTIFICATION: IDENTIFY WITH DART P/N "D2010-103" USING WHITE FINE POINT PERMANENT INK MARKER
  - 7) WEIGHT: 0.34 lbs

DESIGN	JB	<b>DART AEROSPACE LTD</b> HAWKESBURY, ONTARIO, CANADA	
DRAWN	JB		
CHECKED	PH	DRAWING NO.	REV. D
MFG. APPR.	PH	D2010	SHEET 3 OF 4
APPROVED	PH	TITLE	SCALE
DE APPR.	PH	MIRROR BRACKET	NTS
DATE	08.06.10	COPYRIGHT © 1990 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	

u/069620

8 7 6 5 4 3 2 1

W/O:		WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector	

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

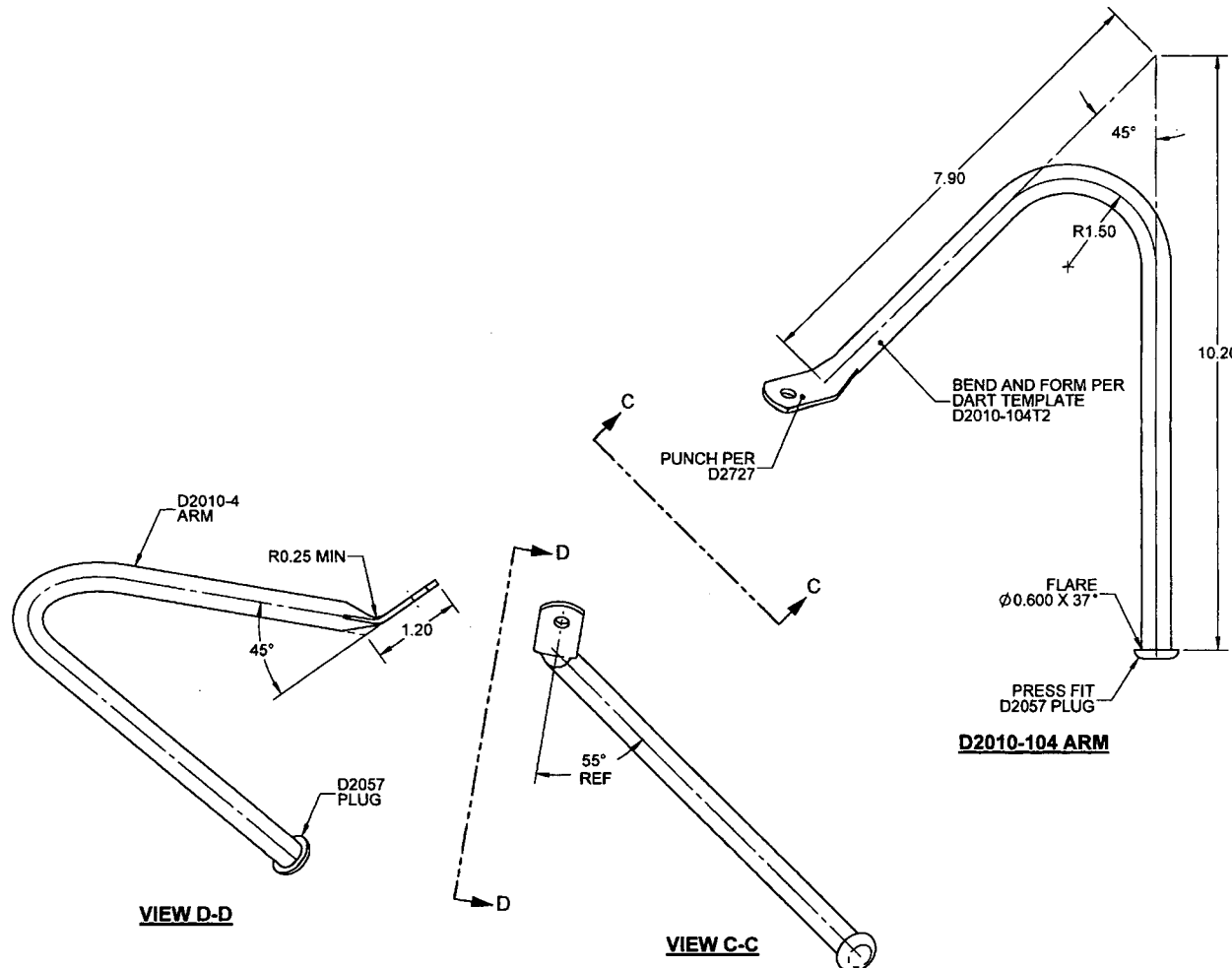
QTY -104	P/N	DESCRIPTION
X	D2010-104	ARM
1	D2010-4	ARM
1	D2057	PLUG

RELEASED  
08-06-10

- NOTES:
- 1) MATERIAL: D2010-4: AISI 304/316 SS SEAMLESS ROUND TUBING,  $\varnothing 0.500 \times 0.049$  WALL (REF DART SPEC M304TR0.500W.049)  $\Delta$
  - 2) FINISH: POWDER COAT BLACK SANDEX (4.3.5.7) PER DART QSI 005 4.3
  - 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
  - 4) UNITS: INCHES UNLESS OTHERWISE NOTED
  - 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
  - 6) IDENTIFICATION: IDENTIFY WITH DART P/N "D2010-104" USING WHITE FINE POINT PERMANENT INK MARKER
  - 7) WEIGHT: 0.34 lbs

DESIGN	JB	<b>DART AEROSPACE LTD</b>
DRAWN	PH	HAWKESBURY, ONTARIO, CANADA
CHECKED	PH	DRAWING NO. <b>D2010</b> REV. D
MFG. APPR.	PH	SHEET 4 OF 4
APPROVED	PH	TITLE <b>MIRROR BRACKET</b> SCALE NTS
DE APPR.	PH	
DATE	08.06.10	COPYRIGHT © 1990 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.

*u/o 09620*



W/O:		WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector	

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries